

ACANTHOCYTES IN AMPAROINA AND MYCENA

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SUMMARY. — Study of the acanthocytes, superficial cells covering the epicutis of the pileus and the stipe in the genus *Amparoïna* and some species of *Mycena* which are keyed out. Four new species : *Mycena amazonica*, *M. chloroxantha*, *M. araujae*, *M. asterophora* and a new variety *manausensis* of *M. biornata*, are proposed.

RÉSUMÉ. — Étude des acanthocytes, articles différenciés existant dans les revêtements du pileus et du stipe chez les *Amparoïna* et certains *Mycena*. Une clé d'identification des Mycènes présentant de tels éléments est donnée, alors que quatre espèces nouvelles : *Mycena amazonica*, *M. chloroxantha*, *M. araujae* et *M. asterophora* sont proposées ainsi que la variété nouvelle *manausensis* de *M. biornata*.

We shall call acanthocytes the superficial cells covering the epicutis of the pileus (?gleba) and the stipe or part of it in some species of *Mycena* sections *Sacchariferae* Kühn, and *Basipedes* (Fr.) Kühner (probably to be united to form a single section — *Basipedes*) and the genus *Amparoïna*. These acanthocytes occur singly or in chains (which later break up to produce single cells) and form a dusty or mealy mass often arranged in spinules or small cones. The single cells are covered with one to many more or less acute, mostly somewhat to strongly thickwalled spines without pigment or, if pigmented, with vacuolar pigment, frequently all surfaces or some covered by minute obtuse warts or more frequently minutely diverticulated in the manner of some epicutis hyphae of the typical *Mycenae*, the cell wall being inamyloid or showing a thin pseudoamyloid outer layer. In some species only a few can be discovered in mature carpophores, in others they are still numerous. The pulverulent mass formed by them is comparable to the universal veil formed in some *Amanitas* and HORAK (1980) actually considers it a universal veil. At the same time however the acanthocytes may be chlamydospores i. e. asexual spores comparable to those formed by *Asterophora*. In some it was possible to discover two nuclei (or more) and in one *Mycena* we have observed germination of these cells if they

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are put on malt agar in a Petri dish. In *Amparoina*, their occurrence is linked with inamyloid basidiospores, in *Mycena* with amyloid ones. In *Amparoina*, the sporulation begins when the carpophores are still closed; in the *Mycenas* only after the hymenophore has become exposed. Since we were unable to find spores or obtain a spore print from repand pilei of the type collection of *A. spinosissima*, we (SINGER & DIGILIO, 1951) changed our first interpretation (viz. that *Amparoina* is an agaric with a tendency towards bulbilosis) and considered them secotiaceous, but HORAK (1980) reports that he obtained a spore print from his own collection. HORAK says that the area of distribution «appeared at first restricted to the montane *Abnus* forests» which is not quite correct since the type of *A. spinosissima* was collected in subtropical-montane forest on what appeared to be a log of *Phoebe porphyrea* (*Lauraceae*). He also thinks that *A. heteracantha* Sing. is synonymous with *A. spinosissima* but his description covers only the second of these species and we see no reason to think the two species to be identical. Nevertheless, the observation of a spore print in what is obviously *A. spinosissima* – in conjunction with the shape of the basidia and spores suggesting autobasidia – exclude the possibility of this being secotiaceous. On the other hand, HORAK's observation of *A. spinosissima* in New Caledonia (at a latitude near that of the type locality) suggests that this species has a disjunct area of distribution which would indicate that it is primitive, not derived, in relation to the acanthocyte-bearing *Mycenae*.

The close relationship between *Amparoina* and *Mycena* sect. *Basipedes* became more obvious when a whole series of species of *Mycena* turned out to have the same kind of superficial bodies, acanthocytes, as *Amparoina* (see Pl. 1). These *Mycenas* can be identified with the following key :

1. Stipe rising from a definite broad, mostly deeply costate-sulcate basal disc
 2. Acanthocytes with simple spines which project less than 20µm *M. amazonica*
 2. Acanthocytes with one or several or many spines longer than 20µm, the spines often forked in some species.
 3. Pileus green and/or yellow; acanthocytes few and rather thin-walled, with three to five spines *M. chloroxantha*
 3. Pileus white or gray, often sepia or blackish dotted; acanthocytes either entirely thick-walled, or at least the spines thickish or thick-walled.
 4. Acanthocyte spines more than four, some of these forked *M. biornata*
 4. Acanthocytes with mostly one, more rarely up to four spines which are seta-like
 5. Acanthocyte with brown vacuolar pigment; pileus pallid with small sepia or blackish dots *M. araujuae*
 5. Acanthocyte pigment-less or yellowish; pileus white or gray *M. trichocephala*
1. Base of stipe not discoid, either simply insititious or with radiating minute mycelial fibrils or with an extremely narrow, bulb-like, smooth broadening *M. asterophora*

***Mycena amazonica* Sing., spec. nov.**

Pileo griseo, atrogriseo-punctato, minute subflocculoso-farinaceo, convexo. Lamellis albis, liberis. Stipite albo, a disco manifesto nato. Sporis 8.8.5 x 4.5.5µm, ellipsoideis, amyloideis. Hyphis omnibus fibulatis, haud gelatinosis. Epicute infra stratum externum e

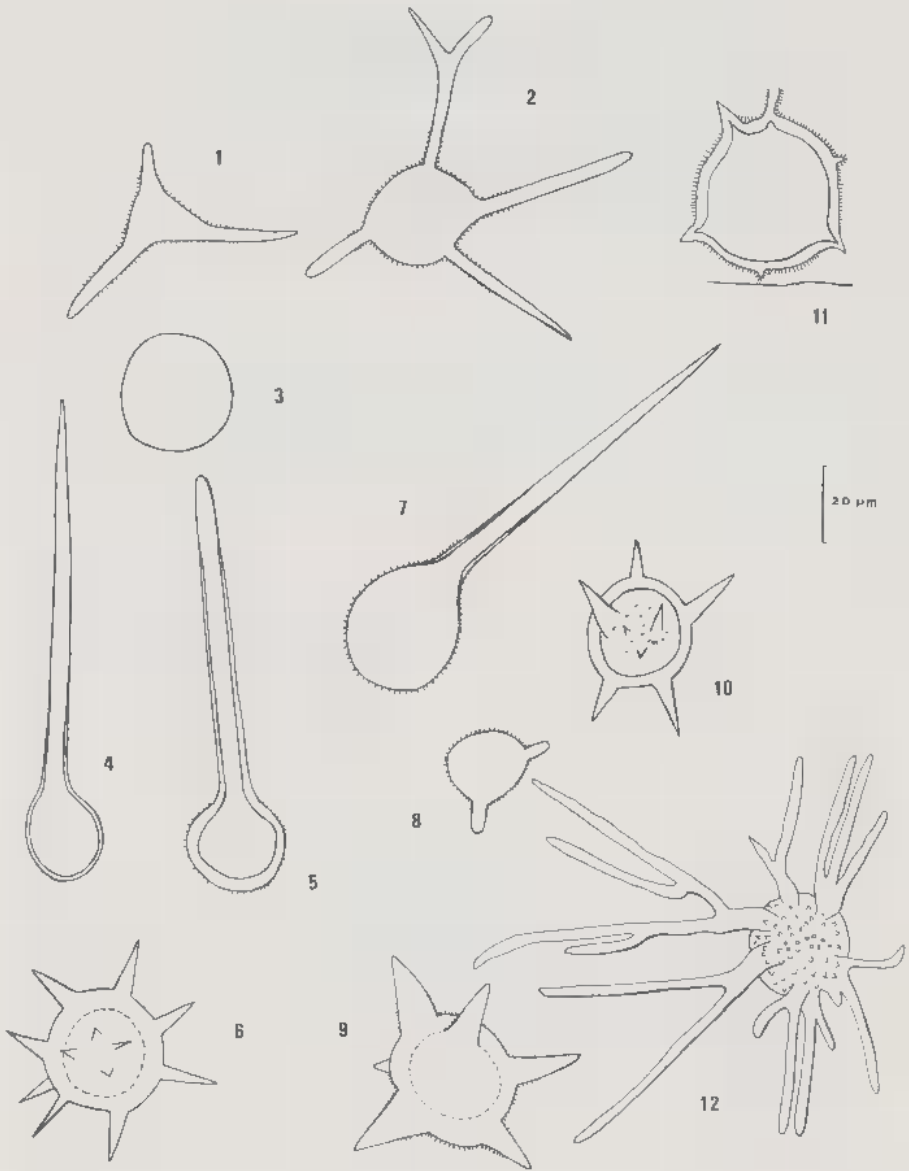


Plate 1. — Fig. 1-2 : Acanthocytes of *Mycena chloroxantha*; Fig. 3 : Spherocyst of the same. Fig. 4-5 : Acanthocytes of *Mycena trichocephala*; Fig. 6 : Acanthocyte of *Mycena amazonica*; Fig. 7-8 : Acanthocytes of *Mycena araujæ*; Fig. 9 : Acanthocyte of *Mycena asterophora*; Fig. 10 : Acanthocyte of *Amparoina spinosissima*; Fig. 11 : Acanthocyte of *Amparoina heteracantha*; Fig. 12 : Acanthocyte of *Mycena biomata*.

sphaerocystibus et acanthocytis efformatum inconspicua, ex hyphis unilateraliter diverticulatis efformata et dermatocystidiis nonnullis cheilocystidiis similibus ornata; acanthocytis intus hyalinis vel pigmento vacuolari spadiceo impletis, parietibus hyalinis 3-7 μ m crassis, spinis septem vel octo, conico-acutis, 10-15 μ m longis, corpore centrali 24-35 μ m diam. Stipitis tegumento e catenulis hypharum et pilis longis erectis 65-200 x 9-13 μ m nec non e dermatocystidiis ventricosis e. gr. 25 x 7.5-15 μ m efformato, cellulis tegumenti omnibus hyalinis, tenuitunicatis, subtiliter diverticulatis, numerosis. Ad folia delapsa Dicotyledonum in Brasilia : Amazonas, 30 km N a Manaus, 23 III 1978, SINGER B 10826 (INPA), typus.

***M. chloroxantha* Sing., spec. nov.**

Pileo flavo vel viridi-flocculoso supra fundamentum albidum vel grisellum. Lamellis stipiteque albis, disco basali costato. Acanthocytis cum sphaerocystibus ex toto minute diverticulatis, spinis acanthocytorum tribus vel quinque, subtenuitunicatis, nonnullis furcatis, obtusis vel acutis. Ceterum speciei antecedenti simillima. In foliis delapsis dicotyledoneis Brasiliae : Amazonas, 30 km N a Manaus, 23 III 1978, SINGER B 10836 (INPA), typus.

***M. biornata* Sing., Sydowia Beih. 7 : 38. 1973.**

Var. *biornata*.

Described l. c.

Var. *manausensis* Sing., var. nov.

A var. biornata differt pileo griseo siccando pallescente nec non sporis paulum minoribus. Brasilia : Amazonas, 30 km N a Manaus ad folia emortua, 21 VII 1977, SINGER B 9785 (INPA), typus varietatis.

***M. araujae* Sing., spec. nov.**

Pileo supra epicutem pallidam vel grisellam granulis flocculosis sepiceo-vel nigricante maculoso, lamellis stipiteque albis et Mycenae amazonicae similibus. Sed acanthocytis unispinosis, rarius bi- vel tetra-spinosis, spinis acutis, 10-40 μ m longis, subtenuitunicatis at in parte inferiore subcrasse tunicatis (pariete 0.3-1.3 μ m crassa), simplicibus ornatis. Sporibus 8-9.5 x 5-6 μ m, ellipsoideis, debiliter amyloideis. Ad folia dejecta Dicotyledonum in Brasilia : Amazonas, 30 km a Manaus, 26 XII 1977, SINGER B 10414 (INPA), typus. 18 V 1977, B 9635 B (INPA). 15 XII 1977, B 10326 (INPA).

***M. trichocephala* Sing., Sydowia Beih. 7 : 38. 1973.**

This is known only from Brazil. The type was collected in Pará, Est. Pirelli. Further material : Amazonas, 30 km N of Manaus, 13 VII 1977, SINGER B 10095 (INPA). 9 II 1978, B 10646 (INPA). 29 X 1977, B 10214 (INPA). 2 III 1978, B 10776 (INPA).

***M. asterophora* Sing., spec. nov.**

Pileo albo, pulverulento, conico vel campanulato, demum convexo, obtuso, 2-10 mm

lato. Lamellis albis, sublatiusculis, subdistantibus vel subconfertis, subliberis. Stipite albo, piloso, filamentoso, disco bulboque nullis, insititio, 15-70 x 0.1-0.2 mm. Odore nullo. Sporis 6.5-9.5 x 4.5-6.5 μ m, amyloideis, levibus. Basidiis 11-19 x 6-9 μ m, tetrasporis. Cystidiis nullis vel sparsis cheilocystidiisque similibus. Cheilocystidiis plerumque ventricosus vel subvesiculosus, 10-23 x 5.5-12.5 μ m, interdum ad apicem crassitunicatis, asperulis vel subtiliter diverticulatis, interdum prope marginem pilei tantum evolutis et stipitem versus typo secundo substitutis, qui 8 x 5.5 μ m, subulatis, levibus. Hyphis in tramate latis et multiseptatis, fortiter pseudoamyloideis, haud gelatinosis, fibuligeris, in stipite parallelis.

Epicute pilei ex hyphis diverticulatis, dermatocystidiis cheilocystidiis simillimis sat sparsis, supra epicutem cellulis demum liberis instructa, ex eis acanthocytis et sphaerocystibus insignibus, illis subisodiametricis, globosis vel angularibus, interdum ovalibus, 5-9-spinosis, spinis acutis vel subacutis 8-29 μ m longis et ad basin ita ut corpus centrale dense diverticulatis, crasse tunicatis (pariete 1.5-8 μ m diam.), inamyloideis, diametro corporis centralis \pm 38 μ m; sphaerocystibus hyalinis, diverticulatis, \pm 40 x 40 μ m vel subelongatis (e. gr. 15-50 x 22-34 μ m), mox liberis, numerosis. Tegumento stipitis ν pilis usque ad 330 μ m longis, 6-15 μ m latis, hyalinis, diverticulatis. Ad folia et ramulos Dicotyledonum dejecta in Brasilia et Aequatoria: Napo. Shushufindi, 15 V 1973, SINGER B 7466 (F) lectus. 13 V 1973, SINGER B 7466 (F). Brazil: Amazonas, Manaus, 23 IV 1977, SINGER B 9743 \blacksquare (INPA). 4 XII 1978, B 11430 (INPA). 22 IV 1977, B 9795 (INPA). 14 V 1977, B 9881 (INPA). 30 km N of Manaus, 21 IV 1977, B 9743 (INPA).

This last species is close to *M. osmundicola* but differs in the presence of acanthocytes which may be scarce in rain-washed material. This and the preceding species have the same size of pileus and stipe.

It is remarkable that all species with acanthocytes have until now only been found on dicotyledonous litter in latosol (*terra firme*) forests, all on dead leaves in primary forest except *M. asterophora* which often grows also on small twigs and sometimes in secondary forests. In contrast to this situation the two known species of *Amparoina* are lignicolous, growing exclusively on dicotyledonous trunks and logs.

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